CLAIMS:

1. A magnetic localization device, comprising:

a) a field generator (2) for generating a magnetic field;

b) a field sensor (4) for measuring the magnetic field;

c) a reference sensor (3) for measuring the magnetic field at a known reference position;

d) a control unit (5), which is arranged for determining the position ($\underline{x}'$) of the field sensor (4) relative to the field generator (2) and thereby for compensating external field distortions by taking the reference sensor (3) into consideration.

2. A localization device as claimed in claim 1, characterized in that the spatial position of the field generator (2) is known.

3. A localization device (1) as claimed in claim 1, characterized in that the field generator (2) and/or the reference sensor (3) are fastened to the gantry (1) of a computer tomograph.

4. A localization device as claimed in claim 1, characterized in that the control unit (5) contains a memory with a calibration function ($\underline{\delta}(\underline{x},\Phi)$), which provides a correction shift (δ) for the uncorrected determined position ($\underline{x}$) of the field sensor (4) based on measured signals of the reference sensor (3) and the field sensor (4).

5. An examination device, comprising:

- an imaging device, in particular a computer tomograph (1);
- a magnetic localization device (2, 3, 4, 5) as claimed in any one of the claims 1 to 4.

6. A method for position measurement with a magnetic localization device (2, 3, 4, 5), comprising the steps of:

a) collecting the signals of a field sensor (4) and/or a field generator (2);

b) collecting the signals of a magnetic reference sensor (3), which is placed at a known spatial position relative to the field generator (2) or to the field sensor (4);

c) determining the position ($\underline{x}'$) of the field sensor (4) relative to the field generator (2), where external field distortions are compensated by taking the signals of the reference sensor (3) into consideration.

7. A method as claimed in claim 6, characterized in that a correction function ($\delta(\underline{x},\Phi)$) is determined, which indicates a correction shift (δ) for the uncorrected determined position of the field sensor (4) in dependence on the signal of the reference sensor (3) and the uncorrected determined position ($\underline{x}$) of the field sensor (4).

8. A method as claimed in claim 7, characterized in that the correction function ($\delta(\underline{x},\Phi)$) for support points in a volume of interest (VOI) is empirically determined and extended by extrapolation or interpolation respectively on the whole volume (VOI).

9. A method as claimed in claim 6, characterized in that a parameter (Φ) is determined from the signal of the reference sensor (3), which parameter characterizes the external field distortion.

10. A method as claimed in claim 9, characterized in that the parameter (Φ) describes the angle of rotation of a computer tomograph (1) situated in the vicinity of the localization device.